

REMARKS

The application has been amended to correct inadvertent errors. In particular, with respect to the amendment changing the word "more" at page 7, line 16 to "smaller", Applicants submit that it is evident from the description at page 7, lines 18-20 in the present application that "more" is simply an editorial error and should correctly be "smaller". As to the change from " $\text{Li}_a\text{Ni}_{1-b-c}\text{Co}_b\text{Mn}_c\text{M}_d\text{O}_2$ " to " $\text{Li}_a\text{Ni}_{1-b-c-d}\text{Co}_b\text{Mn}_c\text{M}_d\text{O}_2$ ", Applicants submit that it is evident from the composition " $\text{Li}_{1.08}\text{Ni}_{0.53}\text{Co}_{0.14}\text{Mn}_{0.30}\text{M}_{0.03}\text{O}_2$ " set forth at page 29, line 1 in the present application that " $\text{Li}_a\text{Ni}_{1-b-c}\text{Co}_b\text{Mn}_c\text{M}_d\text{O}_2$ " is simply an editorial error and that " $\text{Li}_a\text{Ni}_{1-b-c-d}\text{Co}_b\text{Mn}_c\text{M}_d\text{O}_2$ " is the correct formula. Claim 6 has been amended to depend on claim 5 based on the disclosure at page 9, line 14 to page 10, line 21, particularly page 10, lines 18-21. Claims 8-13 have been added based on the disclosure in Figs. 3 and 4 of the present application, and claim 14 has been added based on the disclosure in Table 3 of the present application.

Entry of the above amendments is respectfully requested.

Preliminary Matter

When Nakajima et al (JP-A-2000-133262) was submitted with the Information Disclosure Statement filed February 23, 2004, an English abstract thereof was submitted as a concise explanation of relevance. For the Examiner's use, Applicants attach hereto a partial English translation starting from [Comparative Example 6] at line 27 of the right column on page 4 and ending at paragraph [0030] and an English translation of the data of "Comparative Example 6" in Table 1 for this reference.

Art Rejections

On page 2 of the Office Action, claims 1, 3-4 and 7 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Nakajima et al (JP 2000-133262, Abstract). Further, on page 3 of the Office Action, claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakajima et al (JP 2000-133262, Abstract) in view of Inoue et al (5,707,756).

In response to these rejections, Applicants note initially that the Examiner states at page 3, lines 1-2 in the Office Action that "0.51 is within the standard deviation of measuring error".

However, Applicants submit that in Nakajima et al, the ratio R is expressed to the third decimal place. This means that the data were measured so that the figures to the third decimal place are significant. Accordingly, Applicants submit that the figure 0.510 is not within the standard deviation of measuring error for 0.50.

Furthermore, the Examiner states at page 3, lines 7-9 in the Office Action that "the disclosure by the reference of a preferred embodiment does not teach away from the entire disclosure of the patent".

However, Applicants submit that to confirm the effect obtained by changing the XRD peak ratio, it is necessary to compare a pair in which factors other than the XRD peak are the same. In the case of Table 1 in the present application, the pairs of Example 11 and Comparative Example 1, Example 13 and Comparative Example 3, Example 14 and Comparative Example 4, Example 15 and Comparative Example 5, Example 16 and Comparative Example 6, and Example 17 and Comparative Example 7 should be compared, since the composition is the same for each of these pairs. In these comparisons, the Example

of the present invention is always noticeably superior to the Comparative Example in capacity density. Another table is shown below in which the data of Table 1 are rearranged so as to be able to make the above-cited comparisons easier. Thus, in the present application, it is clearly demonstrated that the comparative examples are far inferior to the invention of the present application. Therefore, it is submitted that the present invention provides unexpectedly superior results and is not obvious for this additional reason.

Active material	a	b	c	b+c	R	Calci- nation temper- ature	Capacity density	Retention
Ex. 11	1.09	0.05	0.15	0.20	0.493	900	185	81
Comp. Ex. 1	1.09	0.05	0.15	0.20	0.511	800	148	81
Ex. 13	1.04	0.35	0.15	0.50	0.491	900	161	84
Comp. Ex. 3	1.04	0.35	0.15	0.50	0.520	800	141	84
Ex. 14	1.03	0.25	0.15	0.40	0.497	900	167	92
Comp. Ex. 4	1.05	0.25	0.15	0.40	0.531	800	146	79
Ex. 15	1.02	0.15	0.35	0.50	0.462	900	151	84
Comp. Ex. 5	1.03	0.15	0.35	0.50	0.509	800	139	76
Ex. 16	1.06	0.10	0.15	0.25	0.473	900	174	85
Comp. Ex. 6	1.03	0.10	0.15	0.25	0.508	800	147	70
Ex. 17	1.05	0.20	0.35	0.55	0.486	900	152	84
Comp. Ex. 7	1.04	0.20	0.35	0.55	0.514	800	140	83

Further, the Examiner states at page 3, lines 5-6 in the Office Action that "one of ordinary skill in the art would have expected the similar ranges to have the same properties". However, when Example 11 of the present application is compared with Comparative Example 1, it is evident that for the cases of $R = 0.511$ and 0.493 , a significant difference occurs in capacity density, i.e., for the former 185 mAh/g and for the latter 148 mAh/g. Thus, Applicants submit that it is impossible to predict that the properties at an intermediate value of 0.50 are the same as those at a value of 0.511.

By comparing Example 11 of the present application and Comparative Example 1, a difference in calcination temperature as large as 100°C causes the XRD ratio to change by only 0.018. This fact indicates that in order to change the XRD ratio from 0.510 to 0.50, the calcination temperature must be changed considerably. Applicants submit that such a large change in calcination temperature never takes place without a certain intention of the person conducting the synthesis.

Also, the Examiner states in the third paragraph of item 2 on page 2 of the Office Action that "inherently the same positive active material for a lithium secondary battery must also be obtained" with the active material of Nakajima et al.

However, by comprehensively considering the above discussion, Applicants submit that it is apparent that the Examiner is not correct in the above indication.

Applicants submit that the present invention has achieved a large capacity density and a long life simultaneously by making R not exceeding 0.50. This fact is apparent from the table above. Since Nakajima et al are not directed to an active material whose R does not exceed 0.50, they have not found the advantage for the case where R does not exceed 0.50. Those inventors have not found that by making R such that it does not exceed 0.50, a large capacity and a good life can be achieved simultaneously.

Thus, Applicants submit that the present invention is not anticipated by or obvious over the cited art. Accordingly, withdrawal of these rejections is respectfully requested.

Allowable Subject Matter

On page 4 of the Office Action, the Examiner indicates that claims 5-6 are allowed.

Applicants thank the Examiner for indicating that claims 5-6 are allowed. Based on the above discussion, Applicants submit that the other pending claims should be allowed as well, and thus allowance of this application is respectfully requested.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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